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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/601,090 | 06/20/2003 | Petr Viscor | 01760.0001-US-01 | 6099 |
| 22865 | 7590 | 05/19/2004 | EXAMINER | |
| ALTERA LAW GROUP, LLC 6500 CITY WEST PARKWAY SUITE 100 MINNEAPOLIS, MN 55344-7704 | | | HASHMI, ZIA R | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2881 | |

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|-----------|
| Office Action Summary | Applicati n No. 10/601,090 | Applicant(s) VISCOR ET AL. | |
| | Examiner Zia R. Hashmi | Art Unit 2881 | <i>AW</i> |

-- Th **MAILING DATE** of this communication appears on the cover sheet with the correspondenc address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/26 & 12/15/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title; if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-58 are rejected under U.S.C. 103(a) as being unpatentable over Delong et al. (Journal of Vacuum Science and Technology, B7(6), Pp. 1422-1425, November/December, 1989), in view of Okamoto et al. (5,280,221).
3. With respect to independent claims 1, 9, 16, 32, 41, 51, and 58, Delong et al. disclose methods and apparatus of a planar electron emitter system for lithography (Abstract, lines 3-9, Section I, para 1, lines 1-6, Section IV, and Fig. 7), comprising: a planar electron emitter having a first electrically conducting layer; a second electrically conducting layer that emits electrons, an insulating layer disposed between the first and second electrically conducting layers, wherein the second electrically conducting layer emits electrons when held at an electrical potential (Section II, para 1, lines 1-8, para 2, lines 7-11, and Fig. 1 & 3), and a substrate mount for holding a substrate facing the planar electron emitter and an adjustable stage (Section IV, para 1, lines 14-17 and Fig. 7), the system operable at exposure time of 100 milliseconds (Section V, para 1, line 5).
4. With respect to independent claims 31 and 50, Delong et al. further disclose that their system comprises a projection system to project electrons in a pattern from a

planar electron emitter to an exposure with a 1:1 magnification (Abstract, line 1, Section II, para 1, lines 1-2, Section IV, para 1, lines 1-2, Section VI, para 1, line 4 , and Fig. 7).

5. With respect to claims 1-29, 32-49, and 51-58, Delong et al. fail to disclose a source of electrical potential so that the potential between first and second conducting layer is reversible, or a power supply providing inverted polarity between the first and second conducting layers. Okamoto et al. however, disclose a source of electric potential connected to first and second electrodes at a first half cycle of each cycle of an a.c. voltage, thus at each half cycle of each cycle, the electrons are generated from electrons stored in the layer inside of the thin film, and emitted from the second electrode (Abstract, lines 5-12, col. 2, lines 9-22, col. 4, lines 1-12, 9 in Fig. 2A & Fig. 2B, and Fig. 4).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine the methods and apparatus of Delong and Okamoto et al., and add features like controlling temperature for cooling the planar electron emitter, because Delong et al. teach (Section I, para 1, lines 1-6) that a projection lithographic system imaging a mask of an integrated circuit in 1:1 ratio by means of photoemission of electrons, has indisputable advantages.

Conclusion

6. Birecki et al. disclose (Pub. No : US 2003/0128647 A1) an improved planar electron emitter apparatus, which, apart from an emitter electrode, has an extractor and focus electrode all configured in one unit.


Art Unit: 2881

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

Zia Hashmi

April 20, 2004.


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800